

What is claimed is:

1. A wide area load sharing control system comprising:
a module determining a ratio at which an input traffic
to ingress edge nodes is distributed to a plurality of paths
5 set up between said ingress edge nodes and egress edge nodes
that correspond to within a traffic engineering section
within a network; and
a module indicating which unit, a sharing control unit
corresponding to said ingress edge nodes or other
10 concentration control unit, executes a process of
determining the ratio at which the input traffic to said
ingress edge nodes is distributed to the plurality of paths.
2. A wide area load sharing control system according
15 to claim 1, wherein said indicating module indicates which
unit, said sharing control unit or said concentration control
unit, takes charge of the determining process in accordance
with load states of said sharing control unit and of said
concentration control unit.
- 20 3. A wide area load sharing control system according
to claim 1, wherein said concentration control unit is a
network control device concentratedly controlling a
plurality of nodes including said ingress edge nodes and
25 said egress edge nodes existing in the traffic engineering
section within the network.

4. A wide area load sharing control system according to claim 3, wherein said indicating module is provided in a state monitoring device outside said network control device.

5

5. A wide area load sharing control system according to claim 1, wherein the network is an MPLS-based label switching network.

10

6. A wide area load sharing control system according to claim 1, wherein when said sharing control unit corresponding to said ingress edge nodes gathers statistic information showing a load state in the network, said sharing control unit gathers directly the statistic information from said nodes capable of using a notification message based on a specified protocol, and gathers, through said concentration control unit, the statistic information from said nodes incapable of using the notification message based on the specified protocol.

15

20

7. A wide area load sharing control system comprising:
a statistic information gathering module obtaining from respective nodes, as statistic information, a traffic state of links connected to said respective nodes in a network;

25

a route determining module determining, based on the obtained statistic information, at least one route for

extending a plurality of paths between ingress edge nodes and egress edge nodes that correspond to within a traffic engineering section in the network; and

a load sharing determining module determining, based
5 on the obtained statistic information, a ratio at which a traffic should be distributed to respective paths on the determined route,

wherein active modules among said statistic
information gathering module, said route determining module
10 and said load sharing determining module are switched over to between said ingress edge nodes and said network control device concentratedly controlling said respective nodes, mutually.

15 8. A wide area load sharing control system according to claim 7, wherein said ingress edge node includes an allocating module allocating packets arrived at, to paths on said route on the basis of the ratio, indicated by said load sharing determining module, at which the traffic should
20 be distributed to the paths on the route.

9. A wide area load sharing control system according to claim 7, further comprising a state monitoring device including:

25 a module gathering and judging the load states of said ingress edge nodes and said network control device; and
an indicating module switching over active modules

among said statistic information gathering module, said route determining module and said load sharing determining module to between said ingress edge nodes and said network control device in accordance with the load states, mutually.

5

10. A wide area load sharing control system according to claim 7, wherein when said ingress edge nodes gather the statistic information showing a load state within the network, said ingress edge nodes gather directly the statistic information from said nodes capable of using a notification message based on a specified protocol, and gather, through said network control device, the statistic information from said nodes incapable of using the notification message based on the specified protocol.

15

11. A wide area load sharing control system according to claim 7, wherein if said ingress edge node does not include said load sharing determining module, said load sharing determining module of said network control device is made to operate.

20

12. A wide area load sharing control system according to claim 7, wherein the network is an MPLS-based label switching network.

25

13. A wide area load sharing control method comprising: determining a ratio at which an input traffic to ingress

edge nodes is distributed to a plurality of paths set up between said ingress edge nodes and egress edge nodes that correspond to within a traffic engineering section within a network; and

5 indicating which unit, a sharing control unit corresponding to said ingress edge nodes or other concentration control unit, executes a process of determining the ratio at which the input traffic to said ingress edge nodes is distributed to the plurality of paths.

10

14. A wide area load sharing control method comprising:
obtaining from respective nodes, as statistic information, a traffic state of links connected to said respective nodes in a network;

15 determining, based on the obtained statistic information, at least one route for extending a plurality of paths between ingress edge nodes and egress edge nodes that correspond to within a traffic engineering section in the network;

20 determining, based on the obtained statistic information, a ratio at which a traffic should be distributed to respective paths on the determined route; and

switching over processing modules of said respective steps to between said ingress edge nodes and control device
25 concentratedly controlling said respective nodes, mutually.

15. A wide area load sharing control method according

to claim 14, further comprising:

gathering and judging the load states of said ingress edge nodes and said control device; and

giving an indication of switching over the processing
5 modules to between said ingress edge nodes and said control device mutually in accordance with the load states.